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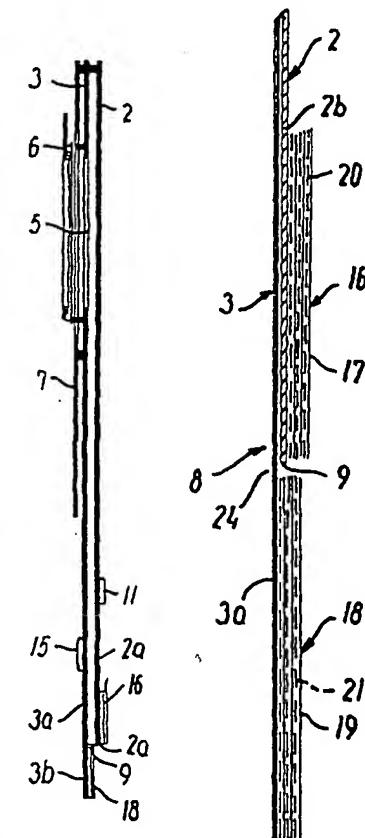
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(54) Title: A REUSABLE COLLECTING BAG FOR HUMAN BODY WASTES



(57) Abstract: In a reusable collecting bag such as a stoma bag (1) having a narrowed discharge portion (8) including a slit-like discharge opening in the vicinity of its distal end the discharge portion (8) is brought from an open position for emptying the bag through the discharge opening (9) and a closed position of use by folding and unfolding the discharge portion (8) about at least one folding line (24) transverse to the longitudinal direction of the discharge portion (8). To avoid or reduce faecal contamination of the discharge portion (8) in connection with emptying of the bag a series (16, 18) of sequentially peelable stacked protective members (17, 19) is applied to each of two surface sections of the discharge portion (8) adjacent the discharge opening (9).

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A reusable collecting bag for human body wastes.

The invention relates to a reusable collecting bag for human body wastes comprising a bag member  
5 formed by two film blanks with joined edges, an inlet opening provided in one of said film blanks,  
connecting elements surrounding said inlet opening for connection of the bag to a body orifice, a narrowed,  
elongated discharge portion starting at a proximal end  
10 at a distance from the inlet opening and extending between two end sections of said film blanks to a distal end, a discharge opening formed in said discharge portion in the vicinity of said distal end,  
said discharge portion being foldable and unfoldable  
15 by at least one folding along a folding line transverse to the longitudinal direction of the discharge portion between said distal and proximal ends to bring the discharge portion from an open unfolded condition to a closed folded condition and  
20 vice versa, and a locking device being provided at the discharge portion for locking the bag in said closed folded condition of the discharge portion.

This type of drainable collecting bags are often used as ostomy bags. In the case of ileostomy patients  
25 and colostomy patients with uncontrolled release of faeces of a more or less fluid consistence, the collecting bag has to be emptied rather frequently, and the discharge portion thus has to be easy to open and re-close after emptying and at the same time  
30 provide a reliable and tight seal in operation, ie. between emptyings.

Several different designs of closure devices have been developed and are generally known.

For instance, GB patent applications Nos. 2 268  
35 065 and 2 000 683 disclose collecting bag with closure

devices, in which strips of the interlocking-elements type, such as Velcro®, are placed on each of the film blanks of the discharge portion and which after folding the discharge portion tightly are brought into  
5 contact with each other.

Further designs are shown in EP patent application No. 0 013 109, in which the outlet portion is folded and subsequently tucked into a gap formed by a semi-rigid strip attached to the bag wall, as well  
10 as published international patent application WO 99/25278, in which the locking means comprises an adhesive layer applied to at least one of two contact surfaces on the discharge portion designed to be brought into contact with each other upon folding of  
15 the discharge portion towards the closed position. .

Other types of closure device are disclosed in US patent No. 4,988,343 and published international patent applications Nos. WO 96/19164 and WO 99/66859, in which the discharge portion is rolled up on a locking  
20 clip fastened to one of the film blanks.

All of the above-mentioned prior art devices suffer, however, from the common disadvantage that at each emptying or discharge of the faecal or urine content of the bag contamination of the surface parts  
25 of the discharge portion adjacent to the discharge opening is hardly avoidable and that consequently washing or cleaning of such surface parts is necessary prior to reclosing of the discharge portion. Evidently such a cleaning operation is not only highly  
30 inconvenient and unpleasant to perform, but makes the handling of the bag cumbersome and causes severe problems in particular for users having reduced dexterity.

On this background, it is the object of the  
35 present invention to provide a reusable collecting bag

of the kind defined, by which the drawback and handling inconvenience of the prior art devices has been eliminated or at least significantly reduced.

According to the invention, this object is  
5 achieved by a reusable collecting bag of the kind defined, which is characterized in that a series of stacked, sequentially peelable adhesive protective members is applied to each of two surface sections of the discharge portion at either side of the discharge  
10 opening.

By covering the surface sections of the discharge portion adjacent to the discharge opening with such series of stacked, sequentially peelable protective members the contamination resulting from emptying the  
15 bag may be easily removed by peeling off the outermost of the stacked protective members to expose a non-contaminated surface area adjacent to the discharge opening.

Preferred and advantageous embodiments of the  
20 reusable collecting bag are stated in the dependent claims.

As will appear therefrom and from the following description the series of peelable protective members according to the invention may be applied to different  
25 designs of the bag discharge portion with different locations of the discharge opening and different forms and locations of the locking means.

By itself the application of a series of stacked sequentially peelable, adhesive members to a surface  
30 part of a reusable article is known in the art, e.g. from EP patent No. 0 276 043 disclosing the application of such an arrangement of adhesive devices to the attachment of an ostomy bag to a body-attachable pad.

35 In the following the invention will be described

in further detail with reference to the schematic drawings, in which

Fig. 1 shows a plan view of an embodiment of a reusable collecting bag according to the invention,  
5 seen from the side intended to face away from the user and in the fully open position;

Fig. 2 shows a longitudinal section of the collecting bag along the line II-II in Fig. 1;

10 Fig. 3 is a schematic side view diagram of the collecting bag in an intermediate position showing only relevant parts of the bag;

Fig. 4 is a view corresponding to Fig. 1 in the fully closed position of the bag;

15 Fig. 5 is a diagram corresponding to Fig. 3 of the collecting bag in the fully closed position;

Figs. 6 and 7 are enlarged schematical cross-sectional views of a distal end part of a discharge portion of the bag in an open and closed condition, respectively;

20 Figs. 8 to 12 are views corresponding to Figs. 1 to 4 of a modification of the discharge portion of the collecting bag in Fig. 1; and

Figs. 13 to 15 are views partly corresponding to Figs. 1. 2 and 4 of a further embodiment.

25 In Figs. 2, 3, 4, 9, 10 and 11 some sectional areas are indicated by fully drawn lines in order not to impede the clear reading of the drawings.

The collecting bag shown in the drawings is designed as an ostomy bag of a generally known and  
30 common type and comprises a bag member 1 formed by two film blanks 2,3 which are joined along their edges by means of a seam 4 made by welding or in any other convenient manner. The film blanks may be made from any suitable flexible plastic sheet or foil material.

35 In the film blank 3, which in use is intended to

face the user and thus forms the back wall of the bag, an inlet opening 5 is provided, which in a manner known *per se* is surrounded by connecting elements 6 for connection of the bag to a body orifice, ie. in 5 this case an intestinal orifice in the form of a so-called stoma in the user's abdominal wall.

As seen in Fig. 2 a comfort layer 7 of another material than the one used for the film blanks may be provided on the back film blank 3. As further 10 explained in the following both of the two film blanks may alternatively be provided with such a comfort layer which may be made of a conventional non-woven tissue material.

At a distance from the inlet opening 5, the bag 15 is designed with a narrowed, elongated discharge portion 8 starting at a proximal or neck end 8a and extending to a distal or terminal end 8b. The discharge portion 8 is formed by end sections 2a and 3a, respectively, of the film blanks 2,3 and is 20 likewise joined along opposed side edges 8c and 8d.

A short distance from the distal end 8b of the discharge portion 8, a discharge opening 9, through which the bag may be emptied of its contents, is formed as a slit between the distal end edge of the 25 end section 2a of the front film blank 2 and an extreme end part 3b of the end section 3a of the back film blank 3 as further explained in the following.

In order to bring the bag from the open or discharge position shown in Figs. 1 and 2 to a 30 position of use, in which the bag is closed, the collecting bag comprises locking means, which in the embodiment shown comprises foldable locking strips 12 and 13 projecting from the side edges 8c and 8d of the discharge portion 8 at the proximal end 8a thereof. 35 The projecting foldable locking strips 12 and 13,

which may be formed integrally with one of the film blanks 2,3, may comprise male snap fastening members, VELCRO® closure members, different types of adhesive members etc. and are realisably engageable with a 5 second mating locking means 14 and 15 provided on the back film blank 3. It should be noted that the locking device may be designed in other ways, e.g. as a traditional locking clip.

In the embodiment shown in figs. 1 to 5, a first 10 series 16 of stacked, sequentially peelable adhesive protective members 17 is applied to the surface of the extreme end part 2b of the end section 2a of the front film blank 2 immediately adjacent the end edge of end section 2a limiting the discharge opening 9. Likewise 15 a second series 18 of stacked, sequentially peelable adhesive protective members 19 is applied to the surface of the extreme end part 3b of the end section 3a of the back film blank 3.

In the illustrated embodiment, each series 16 and 20 18 of protective members includes, as more clearly shown in figs. 6 and 7, three stacked strip or tape like members 17 and 19, respectively, held together by intermediate layers 20 and 21, respectively, of an adhesive permitting easy sequential peel-off of a 25 single protective member at a time.

The protective strip or tape members 17 and 19 may be made of any suitable material known in the art for removable surface protective members. A preferred material would be a plastic film material providing 30 sufficient protective sealing against penetration of faecal contamination, such as polyethylene or polypropylene. In a further preferred embodiment the protective strip or tape members are made from materials, which are water soluble or easily 35 degradable, such that protective members peeled off

from the bag can be easily disposed of, e.g. by being thrown into a toilet, without presenting any environmental problem. Such protective members could be composed e.g. of an easily degradable non-woven sheet material such as sanitary paper with a water soluble adhesive applied to the side contacting an underlying protective member and a thin sealing layer applied to the external side.

To allow easy peeling-off of the outermost protective member 17 or 19 in each of series 16 and 18, each of the stacked protective members 17 and 19 may, as shown in fig. 1, be provided with a gripping flap 22 and 23, respectively. In the embodiment shown in fig. 1 the gripping flaps project beyond the side edges of the protective members 17 and 19, which are parallel to the discharge slit 9, so as not to impede with the locking function of strips 12 and 13, but they may also be provided at other side edges of the protective members.

The sequence of operations required to bring the collecting bag from the open discharge position shown in fig. 1 towards the fully closed position of use is illustrated in figs. 2 to 5.

Although the application of the series 16 and 18 of protective members may add some increased rigidity to the extreme end parts 2b and 3b, respectively, of end sections 2a and 3a, the first step will as illustrated in figs. 2 and 3 comprise folding of the extreme end part 3b of end section 3a about a folding line 24, which in this case coincides with the discharge slit 9 in a direction such that the series 16 and 18 of protective members 17 and 19 face each other. Subsequently, the thus folded end parts 2b and 3b may be folded, as illustrated in fig. 4 by two subsequent foldings about second folding lines 25 and

26 to bring the discharge portion 8 to a completely folded position permitting locking of the bag in the closed position by engagement of locking strips 12 and 13 with locking means 14 and 15 as shown in fig. 5.

5 When emptying of the bag is required, the sequence of operations needed to bring the bag from the closed position of use shown in fig. 5 to the open discharge position shown in fig. 1 is the opposite. After release of the engagement between locking strips  
10 12, 13 and locking means 14, 15 the discharge portion 8 is unfolded and the faecal content of the bag is emptied through the discharge opening 9. After emptying the bag the outermost protective strip member 17 and 19 in each of series 16 and 18 is peeled-off to  
15 expose the clean surfaces of the underlying strips 17 and 19 adjacent to the discharge opening, before the discharge portion 8 is folded back towards its closed position.

The number of protective members in each of  
20 series 16 and 18 will thus depend on the envisaged number of reuses of the bag.. Typically, a number of stacked members will be provided in each of series 16 and 18, which will allow 24 hours use of the bag without replacement, e.g. from 3 to 5 stacked members,  
25 whereas in order to avoid difficulties in handling of the discharge portion in connection with the unfolding and unfolding thereof, the number would preferably not increase eight stacked members,

In the embodiment illustrated in figs. 8 to 12  
30 the collection part of the bag is, in principle, of the same design as shown in fig. 1 to 5 and only the discharge portion 27 and the folding and unfolding thereof for closing and opening of the bag will be further described.

35 Also in this case, the discharge portion 108

comprises a number of foldable sections. At the proximal end of the discharge portion 108 foldable sections 110 and 111 are formed, of which the former is arranged between two folding lines 112 and 113 and 5 the latter between folding line 112 and a limiting line 114. The foldable sections 110 and 111 are provided with a carrier plate 115, typically made of a foam material, which is fastened to the front film blank 102.

10 As illustrated in figs. 9 and 10, in a first folding step during closing of the bag the discharge portion 108 is folded about folding line 112 to bring the surface parts of the carrier plate 115 fastened to sections 110 and 111, respectively, into mutual 15 surface contact. To hold the discharge portion 108 in this first folded position, one of the surface parts of the carrier plate 115, e.g. the surface part applied to section 111 is provided with a layer 116 of an adhesive capable of easy release and repeated 20 adhesion.

In the discharge portion 108 the discharge opening 109 is provided in the same way as described for the embodiment in figs. 1 to 5 as a slit-like opening between the end edge of an extension 102a of 25 front film blank 102 and an extreme end part 103b of an extension 103a of the back film blank 103. On either side of the slit-like discharge opening 109 first and second series 117 and 118 of stacked, sequentially peelable adhesive protective members are 30 applied to the extreme ends part 102b and 103b, respectively, of the extensions 102a and 103a of the front and back film blanks. The two series 117 and 118 of protective members may, in principle be designed and composed as described above for the embodiment in 35 figs. 1 to 5.

As illustrated in fig. 10 the extreme end parts 102b and 103b of the film blank extension 102a and 103a are, in this case not folded with respect to each other, but provide a contact surface 119 for use in a 5 subsequent folding operation, in which the distal end of the discharge portion 108 comprising the extreme end parts 102b and 103b is folded, as shown in fig. 11, about the folding line 114 in the same folding direction as the first folding about folding line 112.

10 By this subsequent folding the contact surface 119 provided by the outermost protective member in series 117 and 118 is brought into contact with a contact surface 120 provided by a flap element 121 fastened to the front film blank 102 and comprising a 15 flexible flap portion 122, which is foldable about a folding line 123.

The discharge portion 108 may be kept in the position occupied after the subsequent folding operation by an adhesive layer 124, which is capable 20 of repeated releases and adhesions and may conveniently be applied to the contact surface 120 provided by the flap element 121. Alternatively, such an adhesive layer may also be provided, however by the contact surface 119 provided by the outermost 25 protective member in series 117 and 118.

After the subsequent folding to the position shown in fig. 11 the flap portion 122 is folded about folding line 123 and brought onto contact with a contact surface 125 provided by the back film blank 30 103 at the proximal section 10 of the discharge portion 108.

The function and handling of the series 117 and 118 of protective members may be the same as explained for the embodiment in figs. 1 to 5.

35 A still further embodiment is shown in figs. 13

- to 15, in which the discharge opening 209 is provided between the extreme ends of extension 202a and 203a of the front and back film blanks 202 and 203, respectively, of the bag 201, in which the inlet 5 opening 205 in the back film blank 203 is surrounded in this embodiment by a conventional adhesive fixing plate 206. The locking means comprises a strip member 212 firmly connected with the extension 202a of the front film blank 202 at the extreme end thereof.
10. Such a locking strip is known per se from international patent application WO 96/19164 and comprises a central part 213 adhesively connected with the extension 202a and end sections formed integrally therewith via folding sections 213a and 213b.
15. In this case the two series 216 and 218 of peelable, stacked protective members are applied to the external side of the part of the locking strip 212 connected with the extension 202a of the front film blank 202 and the external side of the extension 203a 20 of the back film blank 203. From the cross sectional view in fig. 14 it will readily appear that folding of the discharge portion 208 from the open position in fig. 13 to the closed position of use shown in fig. 15 is effected by folding the discharge portion 208 from 25 the extreme ends of bag extensions 202a and 203a limiting the discharge opening 209 about the locking strip 212. The function of the peelable protective members in each of series 216 and 218 is the same as described above for the embodiments in figs. 1 to 5.
30. As will appear to those skilled in the art the protection of the discharge portion offered by the invention is not limited to the embodiments described in the foregoing, but may be applied to various designs of reusable stoma bags comprising a foldable 35 discharge portion including, in particular the bag

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designs disclosed in GB 2 000 683 A, US 4,988,343, WO  
96/19164 and WO99/66859. The disclosure of the latter,  
which is incorporated herein by reference, comprises a  
bag discharge portion provided with resilient sealing  
5 plates to improve the sealing of the discharge portion  
in its closed position. Combined therewith the  
provision of peelable protective members according to  
the invention provides the additional advantage of  
protection of such sealing plates against faecal  
10 contamination.

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## P A T E N T C L A I M S

1. A reusable collecting bag for human body wastes comprising a bag member (1,101,201) formed by two film blanks (2,3; 102,103; 202,203) with joined edges, an inlet opening (5,105,205) provided in one (3,103,203) of said film blanks, connecting elements (6,106,206) surrounding said inlet opening for connection of the bag to a body orifice, a narrowed, elongated discharge portion (8,108,208) starting at a proximal end at a distance from the inlet opening (5,105,205) and extending between two end sections (2a,3a; 102a,103a; 202a,203a) of said film blanks to a distal end, a discharge opening (9,109,209) formed in said discharge portion (8,108,208) in the vicinity of said distal end, said discharge portion (8,108,208) being foldable and unfoldable by at least one folding along a folding line (24,112) transverse to the longitudinal direction of the discharge portion between said distal and proximal ends to bring the discharge portion from an open unfolded condition to a closed folded condition and vice versa, and a locking means (10 - 13; 119,120, 112) for locking the discharge portion in said closed folded condition thereof, characterized in that a series (16,18; 117,118; 216,218) of stacked, sequentially peelable adhesive protective members (17,19) is applied to each of two surface sections of the discharge portion (8,108,208) at either side of the discharge opening (9,109,209).

2. A reusable collecting bag as claimed in claim 1, characterized in that the discharge opening (9,109) is formed between one (3,103) of said two end sections of the film blanks and an end edge of

the other end section (2,102) as a slit and that said series (16,18; 117,118) of protective members are applied to surface sections of said end sections (2A,3A;102a,103a) adjoining the end edge of said other 5 end section (3a,103a).

3. A reusable collecting bag as claimed in claim 2, characterized in that the locking means comprises a locking strip (216) formed integrally with said one end section (202a) adjacent to the discharge 10 opening (209) and that one of said series (216) of protective members is applied to the locking strip.

4. A reusable collection bag as claimed in claim 1, characterized in that said discharge opening (209) is formed as a slit between end edges of 15 both of said end sections (202a,203a) and that said series (216,218) of protective members are applied to external surface sections of each of said end sections (202a,203a) adjacent to said slit.

5. A reusable collecting bag as claimed in any of 20 the preceding claims, characterized in that the locking means comprises an adhesive layer (124) applied to at least one (120) of two contact surfaces (119, 120) intended to be brought into contact with each other upon folding of the discharge 25 portion (208) towards the closed position.

6. A reusable collecting bag as claimed in claim 5, characterized in that said one contact surface (119), to which an adhesive layer is applied, comprises the side of each of said protective members 30 in at least one of said series (117,118) facing away from the end section (102a,103a) of the discharge portion (108), to which said one series is applied.

7. A reusable collection bag as claimed in any of the preceding claims, characterized in that the protective members (17,19) in each of said 35

series (16,18) are formed as strip members applied to said surface section to extend transverse to the longitudinal direction of the discharge portion (8).

8. A reusable collection bag as claimed in claim 5 7, characterized in that each protective member (17,19) in each of said series (16,18) is formed with a gripping flap (22,23) extending beyond a side edge of the protective member (17,19).

9. A reusable collecting bag as claimed in any of 10 the preceding claims, characterized in that each of said series (16,18) comprises from 2 to 8 of said stacked protective members (17,19).

10. A reusable collecting bag as claimed in any of the preceding claims, characterized in 15 that said series of stacked peelable protective members are applied to resilient sealing plates connected with said surface sections of the discharge portion.

11. A reusable collecting bag as claimed in any 20 of the preceding claims, characterized in that the protective strip or tape members are made from materials, which are water soluble or easily degradable.

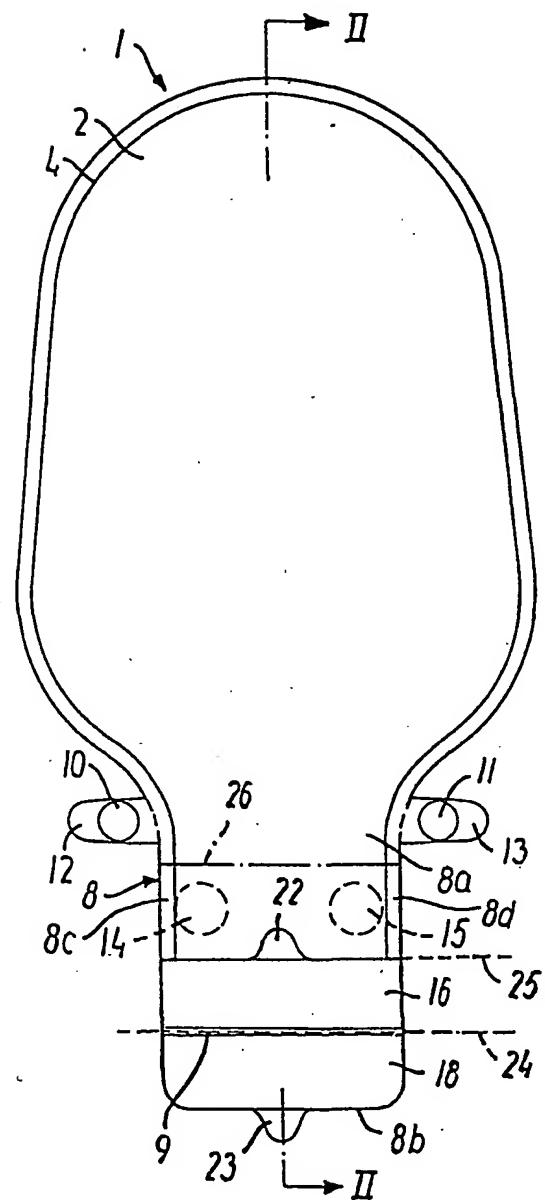


FIG. 1

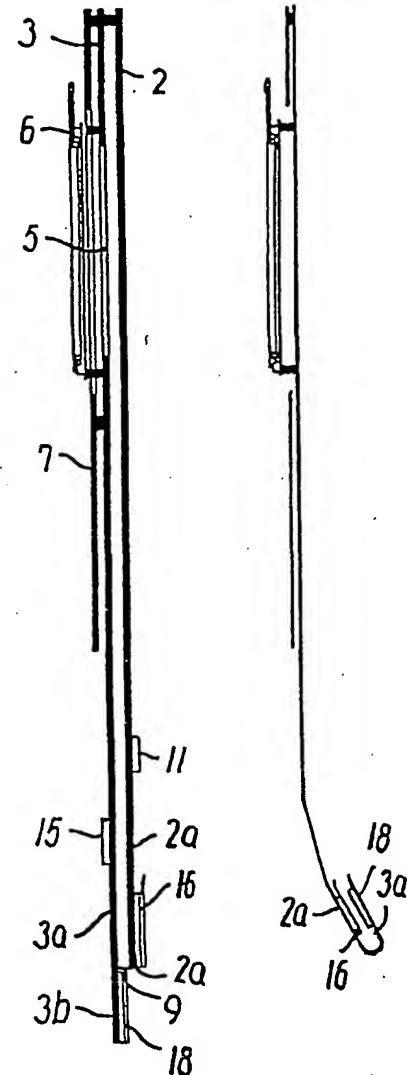
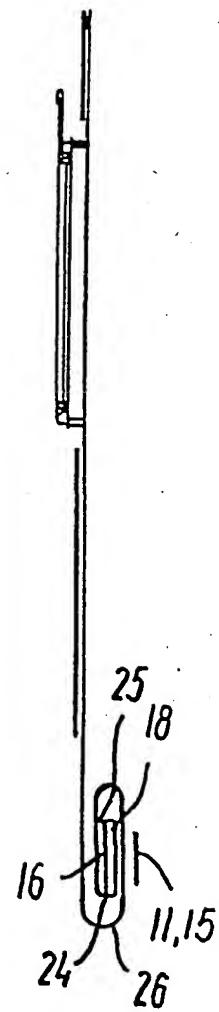
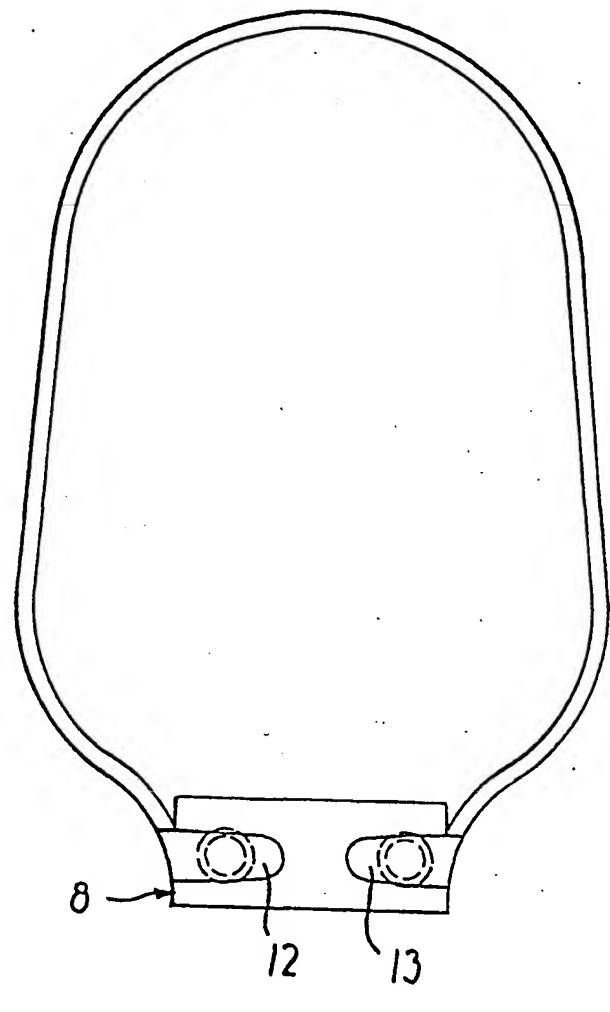


FIG. 2

FIG. 3



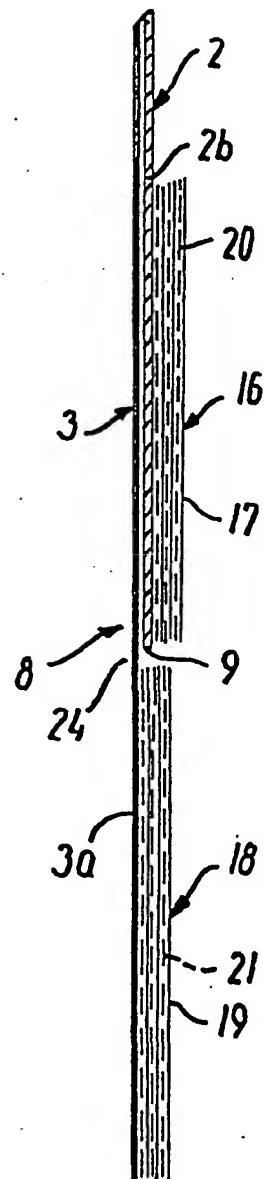


FIG. 6

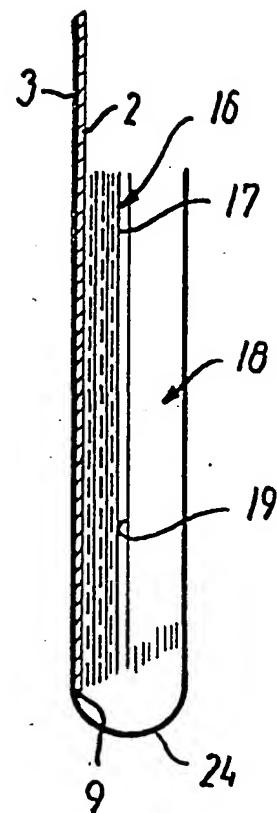
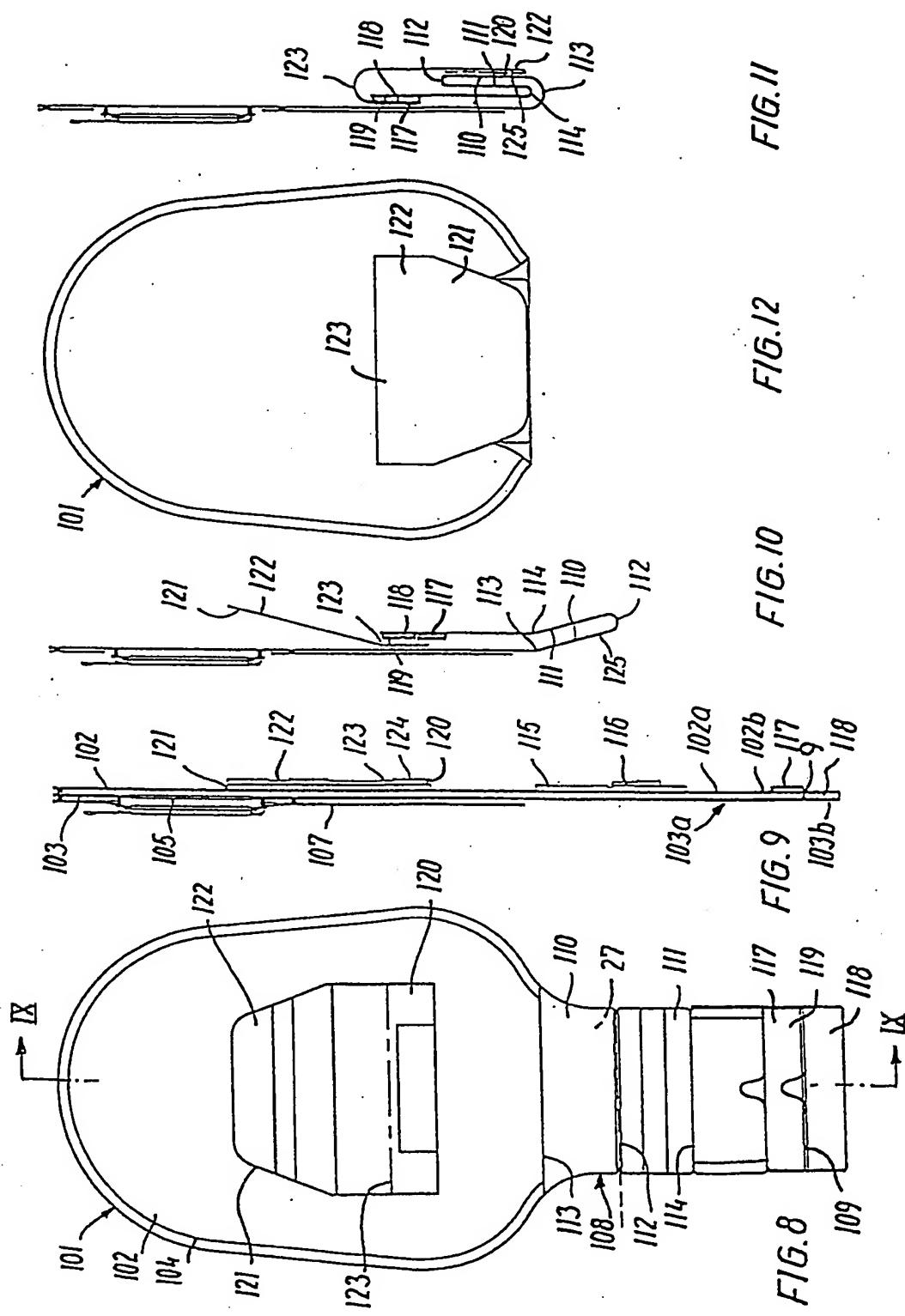


FIG. 7



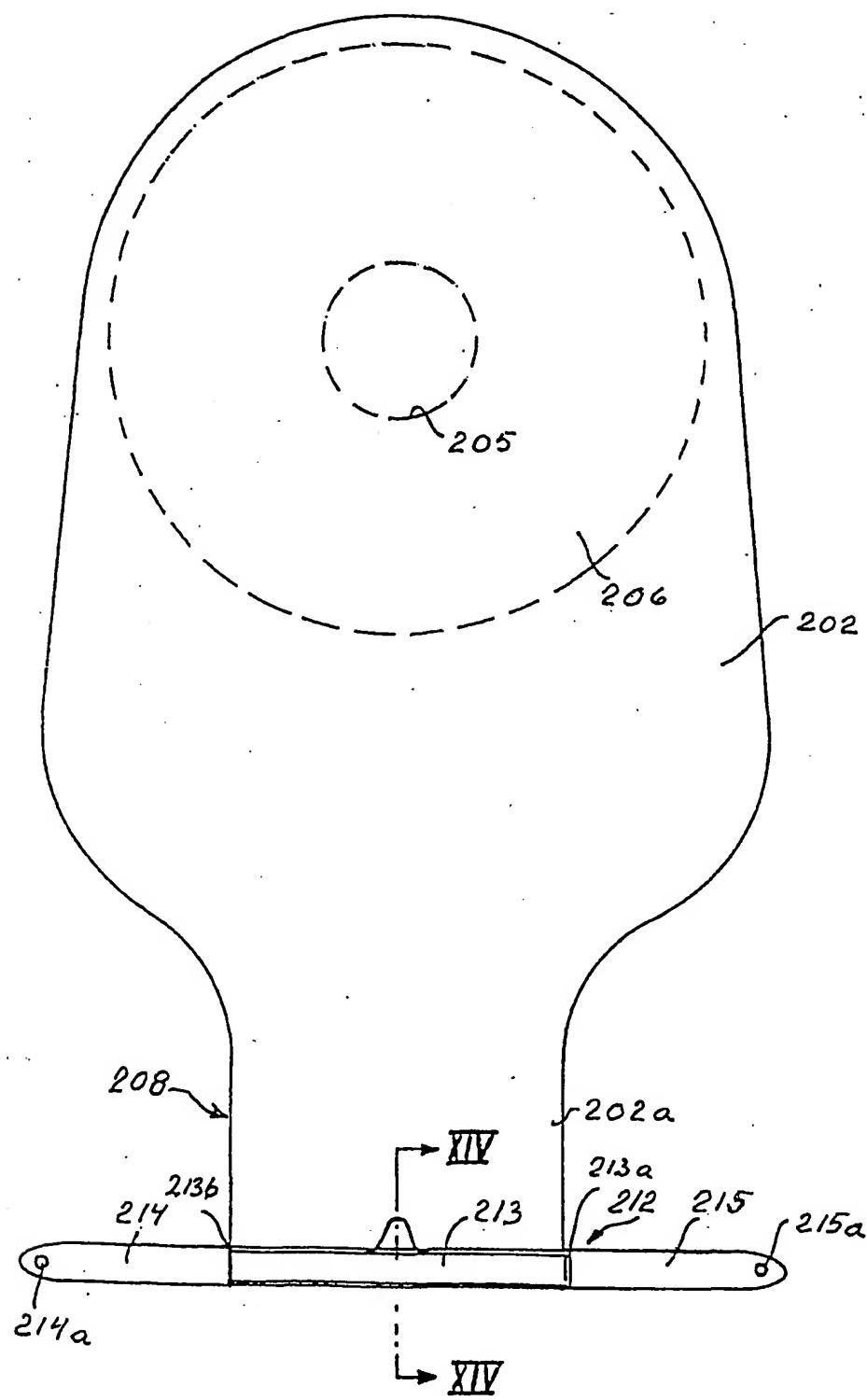


FIG. 13

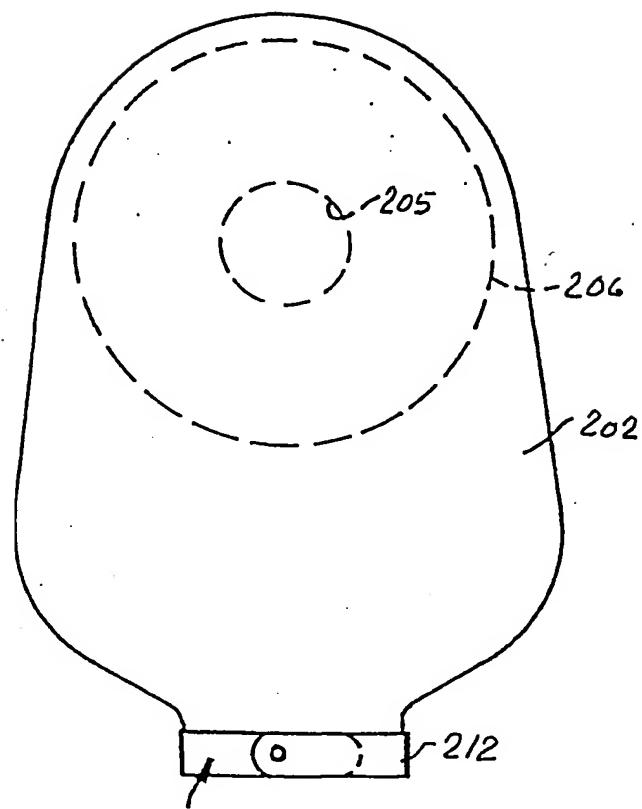


FIG. 15

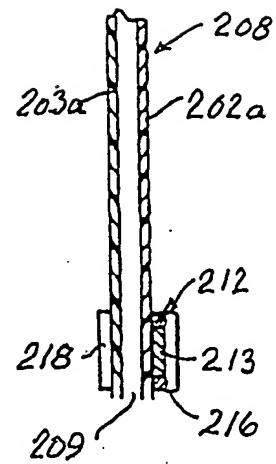


FIG. 14

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F5/443 A61F5/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 276 042 A (CRAIG MED PROD LTD) 27 July 1988 (1988-07-27) column 6, line 28 - line 41; figures 6-11 ---	1
A	US 4 753 703 A (JENSEN OLE R) 28 June 1988 (1988-06-28) abstract; figures 1,2 ---	1
A	WO 99 66859 A (COLOPLAST AS) 29 December 1999 (1999-12-29) cited in the application abstract; figures ---	1
A	US 5 968 024 A (FREEMAN FRANK) 19 October 1999 (1999-10-19) ---	
A	US 4 460 359 A (FENTON LEONARD) 17 July 1984 (1984-07-17) ---	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

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Date of the actual completion of the international search

15 October 2001

Date of mailing of the international search report

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Name and mailing address of the ISA

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Sánchez y Sánchez, J

WO 02/13737

## INTERNATIONAL SEARCH REPORT

Information on patent family members

Intel	al Applica	PCT/DK01/00538
		PCT/DK 01/00538

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 0276042	A	27-07-1988	GB	2157567 A		30-10-1985
			AT	50488 T		15-03-1990
			AT	72957 T		15-03-1992
			AT	72958 T		15-03-1992
			AT	71824 T		15-02-1992
			AU	581419 B2		23-02-1989
			AU	3650384 A		27-06-1985
			CA	1264134 A1		02-01-1990
			DE	3481402 D1		05-04-1990
			DE	3485482 D1		05-03-1992
			DE	3485548 D1		09-04-1992
			DE	3485549 D1		09-04-1992
			DK	83391 A		06-05-1991
			DK	608184 A		20-06-1985
			EP	0146367 A2		26-06-1985
			EP	0276042 A2		27-07-1988
			EP	0276043 A2		27-07-1988
			EP	0276898 A2		03-08-1988
			GB	2151482 A ,B		24-07-1985
			GB	2153232 A ,B		21-08-1985
			IE	56218 B1		22-05-1991
			JP	1819047 C		27-01-1994
			JP	5024781 B		08-04-1993
			JP	60156457 A		16-08-1985
			JP	1947715 C		10-07-1995
			JP	6070950 A		15-03-1994
			JP	6071470 B		14-09-1994
			NO	845081 A ,B,		20-06-1985
			NZ	210518 A		08-01-1988
			US	4701169 A		20-10-1987
			ZA	8409643 A		31-07-1985
			GB	2162626 A ,B		05-02-1986
US 4753703	A	28-06-1988	AT	68685 T		15-11-1991
			AU	600969 B2		30-08-1990
			AU	7770387 A		14-04-1988
			CA	1294504 A1		21-01-1992
			DE	3774065 D1		28-11-1991
			DK	525487 A		09-04-1988
			EP	0263625 A2		13-04-1988
			ES	2025669 T3		01-04-1992
			GR	3003603 T3		16-03-1993
			IE	61625 B		16-11-1994
			JP	2604756 B2		30-04-1997
			JP	63102755 A		07-05-1988
			US	4894058 A		16-01-1990
WO 9966859	A	29-12-1999	DK	80498 A		20-12-1999
			AU	736203 B2		26-07-2001
			AU	4359699 A		10-01-2000
			CN	1306408 T		01-08-2001
			WO	9966859 A2		29-12-1999
			EP	1087723 A2		04-04-2001
US 5968024	A	19-10-1999		NONE		
US 4460359	A	17-07-1984		NONE		